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MONTHLY AGRICULTURAL REPORT

JULY, 1953

GOVERNMENT OF NORTHERN IRELAND
MINISTRY OF AGRICULTURE

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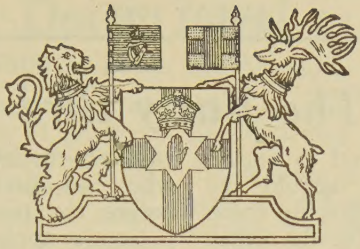

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MINISTRY OF AGRICULTURE

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The Early Bird

Those farmers who tend to regard old proverbs as guides should reconsider the effects of following some of them too literally. On the other hand, there are proverbs which provide sound truths for the farmer and which it would be to his advantage to observe faithfully and without reservation or qualification. Two well-known proverbs may be quoted to illustrate this distinction; one is: *"The early bird catches the worm"* and the other is: *"Better late than never."*

In a sense these might be considered contradictory, since if it is necessary to be early to attain the goal the late comer cannot hope to do so and must be satisfied with something less than the ideal. From the farming aspect this is what usually occurs, the dilatory farmer being at a disadvantage in comparison with his more expeditious neighbour. Indeed, there are many instances in farming activities where the farmer could relevantly transform the second proverb mentioned above to " Better never than late."

Seldom or ever does the "early bird" philosophy fail in its application to farming practices, and the farmer who observes it conscientiously has little cause for doubting its wisdom. In ploughing, sowing, hay-making, silage-making, potato spraying, weed destruction, corn harvesting, the feeding of newly-born animals, the treatment of sick animals, and in many other things on the farm the soundness of the axiom "be early" is beyond argument or dispute. It may be applied profitably, even when marketing certain classes of stock, as the top price is dependent on the weight and if sale is delayed until the maximum weight for top grade and price is exceeded full profit will not be obtained.

At this season it is appropriate to apply the "early bird" principle to hay-making, potato spraying and weed destruction, although readers may justifiably say that July is too late to talk about early hay-making. It is certainly too late for the many farmers who had first crop hay harvested before the middle of June, but the principle applies equally to meadow hay. The radical change that so many farmers are making in their outlook on hay harvesting is most encouraging. They are showing that they appreciate the true nature of hay by not permitting the herbage to grow until it is largely robbed of its nutritive properties through the formation and development of seed.

In potato spraying to prevent blight, timely application is essential and the "better late than never" philosophy is a dangerous delusion. The "early worm" of blight prevention can be caught, only if the foliage is protected against the ravages of the disease before evidence of it is seen, and the protection maintained by a second and even a third spraying to shield newly-developed foliage. A farmer would be guilty of extreme foolishness were he to risk a serious reduction in the yield of such a valuable crop by neglecting to observe the "early bird" maxim in reference to the spraying of his potatoes.

Weed destruction is a never-ending task on every farm. The "thorns also and thistles" of the curse on Adam will ever flourish and the sweat occasioned in their destruction is part retribution for the displeasure caused by man's original fall from grace. But there are many weeds besides thistles which rob the farmer of crop and profit, and persistent vigilance is necessary to keep them in subjection. It is regrettable to see fields of oats and barley in which the crops are being smothered by charlock and nothing being done to give them a fair chance to succeed. Surely this is a case of the "early bird" being kept in a cage instead of being allowed to destroy the "worm" of crop starvation, particularly when a simple and efficient remedy is freely available at a reasonable cost.

Laying Down Land to Grass

V.—UTILISING THE HERBAGE *(continued)*

There is no doubt that, compared with the extensive system of grazing, the "on and off" or rotational method increases the output from pastures and enables the grazing animals to make better use of the grass produced. However, even with this system there are certain undesirable factors operating. The animals are at liberty to range over a relatively large area, with the result that a considerable quantity of the grass is lost by trampling and soiling and, in addition, there is usually a surplus of grass at the beginning of the grazing period and a relative scarcity towards the end. In the case of dairy cows, even though the stock is divided into two groups and the cows are given first choice of the grazing, this uneven provision of food makes it difficult to maintain a level yield of milk. The milking cow is one animal that requires a regular and uniform diet each day.

Strip Grazing

To overcome these problems and to utilise the grass more efficiently, many progressive farmers, who have had experience of the improvement in the productivity of the pastures that resulted from rotational grazing, have developed the system still further and are now practising the strip system of grazing with the aid of an electric fence. Under this system a fresh area of grass, adjusted in size to supply the needs of the number of stock, is made available each day and, indeed, in many cases each morning and evening. Water must be present at one point in the field to be thus grazed, and on the first day a portion of grass having access to the water supply is fenced off with an electric fence. On the following day the fence is moved back to release a fresh area of grass. This procedure is repeated each successive day until the field has been grazed, and throughout that time the animals have access to water by walking back over the area already grazed. In very large fields back fencing may be desirable, but the fields in this country are of such a size that this is seldom necessary.

The area of grass to be fenced off each day will depend on the number of animals and the height and thickness of the sward, but an acre of good pasture will provide sufficient keep for from 60 to 100 cows for one day. There is little difficulty, when experience has been gained, in adjusting the area required daily to supply the needs of the stock.

It has been found that, compared with grazing the fields rotationally, the strip system gives an increase of from 25 to 30 per cent. in the stock carrying capacity per acre of sward. It is reasonable to assume that rotational grazing on a field basis will give at least a similar increase, as compared with allowing a comparatively small number of cattle access to a number of fields which, unfortunately, is the usual practice. Consequently, by adopting a simple and inexpensive method of rotational grazing the majority of farmers could graze five beasts to every four they are now grazing and, if the strip grazing technique were used, this number could be increased to six.

It is only by first class management that the full value of pastures will be obtained, and farmers generally would be well advised to give serious consideration to this frequently neglected aspect of grassland husbandry. A potential increase of up to 50 per cent. in the stock carrying capacity of pastures is a possibility that no farmer can afford to disregard.

Disposal of Droppings

The effect of animal droppings in promoting the growth of rank, unpalatable herbage on the areas surrounding them is well known, and there is considerable controversy as to whether or not they should be spread. It has been calculated that the area normally covered by dung and urine is 24 square feet per cow per

day. If the dung is spread this area is increased, but the concentration is lowered and may become insufficient to render the grass unpalatable to stock. In the case of rotational grazing the problem of soiling is not so acute, and the spreading of the dung, especially when it is dry, is reasonably effective.

However, on highly productive swards which are being strip grazed, soiling presents a real difficulty. After the second or third grazing, a relatively large area of the pasture is rendered unpalatable and the sward becomes rough and irregular. Some farmers have attempted to use store cattle for the longer, unevenly grazed herbage, but this is not satisfactory, as in practice, the animals avoid the tainted areas and eat the clean portions even closer. The best solution to the problem is to take a cut of grass for ensiling off each field once during the course of the grazing season. In this way the soiled grass is removed and the sward is given an opportunity to produce a fresh growth of clean palatable herbage. The tainted grass, when conserved in the form of silage, is readily eaten by stock.

Utilisation of Surplus Grass

Grass grows much more quickly in May and June than at any other time of the year, with the result that the pastures suffer from either undergrazing at this time of year or from overgrazing in mid-summer and autumn.

It is seldom economic to buy cattle in May for sale in June or early July when the flush of grass is over. Accordingly, every endeavour should be made to obtain a more even production of grass throughout the season. This may be achieved, to some extent, by the judicious use of fertilisers to "boost" production in early spring, in the late summer and in autumn, and by seeding part of the land being sown down to grass with a mixture of grasses, such as timothy, meadow fescue and cocksfoot, which do not reach their peak of production until later in the season than the ryegrasses.

Though these measures are adopted, even in conjunction with either rotational or strip grazing, there is still likely to be an excess of grass in May and June. Many farmers do not consider it wasteful of food to allow pastures to "run to seed" at this time, claiming that all the grass will ultimately be eaten. While this may be so, it is yet a wasteful practice, as seed heads and stalks are not readily eaten by stock and contain very little food value as compared with young grass leaves. Besides, grassland on which the surplus flush is eaten or cut for silage is more productive in late summer and autumn than that on which the grass is allowed to mature. Moreover, the formation of seed depletes the food stored in the roots of the plants, which leads to lowered vitality, with the result that, in pastures in which the plants are allowed to run to seed, the better grasses tend to die out and to be replaced by weed grasses such as bent and Yorkshire fog.

In view of these considerations, all excess grass should be utilised before the seed heads are fully formed, and the most convenient way of doing this is to conserve it in the form of silage. In this way, a valuable food is obtained for the stock in winter and, at the same time, the productivity of the swards is raised and their quality maintained.

The making of grass silage is not only a necessity to provide cheap, high-protein winter food, but is also a means whereby the best use can be made of the grassland on the farm. A sound programme of grassland management is to fertilise the swards liberally to get early spring grass, and to cut the grass for silage making in early summer. With such a programme the wasting of valuable food is prevented during the period of flush growth and the pasture is left in a fit state to produce a fresh sward of new grass in late summer and early autumn.

Topping Pastures

As already mentioned, much of the value of a large proportion of grazing land is lost every year by allowing the grass plants to produce seed stalks.

Provided a sufficient number of stock is being carried, properly planned rotational grazing or strip grazing, and the ensiling of the surplus grass during the period of flush growth will do much to prevent heads being produced. However, about the first week of June, especially in the case of the younger pastures, it is almost impossible to prevent the ryegrass plants from running to seed.

If it is seen that seed heads are going to develop in a pasture the mower should be run over it to cut off the flowering stems. The date of topping is important, since if it is delayed until the second week of June, undesirable plants, such as Yorkshire fog, which tend to flourish in the vicinity of droppings, will be permitted to flower and may set their seed. Usually a single topping in the season will be sufficient but, should a pasture show signs of again producing seed heads generally, it should be topped a second time. Apart from its value in maintaining productivity and quality in a pasture, topping is a useful method of controlling weeds such as thistles and ragwort, should these be present.

Financial Results of Northern Ireland Farming

III.—SIZE OF FARM

The comparative profits per acre for farms of different sizes are shown for a five-year period in Table I. Throughout the period the smaller farms have shown higher rates of profit per acre than the larger ones. This is partly because the manual labour of the farmer and his wife, for which no charge is entered, plays a comparatively larger part on the smaller than on the larger farms.

TABLE I.

Profit per acre on farms of different sizes—1947/48 to 1951/52

	1947/48	1948/49	1949/50	1950/51	1951/52
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
0 – 30 acres ...	12 7 9	12 0 2	10 19 7	6 18 6	10 6 9
30 – 50 ,, ...	8 4 5	10 9 5	9 1 6	6 18 0	8 14 11
50 – 100 ,, ...	7 2 3	8 7 8	7 1 9	5 16 7	7 9 1
Over 100 ,, ...	6 2 1	5 18 9	5 13 11	4 18 1	6 4 4
All sizes	7 7 8	8 6 11	7 7 11	5 17 10	7 11 11

Table II gives the results in more detail.

The gross output per acre is considerably higher on the smaller farms, but this is obtained mainly by higher expenditure on purchased feeding stuffs, and the net output is only slightly higher. A further small advantage is secured by lower expenditure on the smaller farms, principally under the heading of labour. As remarked above, the labour of the farmer and his wife is not charged in the accounts.

It will be seen that the total profit on the smallest class of farm is only some £220, which is below the yearly earnings of an adult farm worker.

TABLE II.

Financial Results of Northern Ireland Farming by size of farm—362 Farms—1951/52

Per Acre

	0 – 30 acres	30 – 50 acres	50 – 100 acres	Over 100 acres
Number of farms	73	99	150	40
Average acreage per farm	21½	40½	70	135¼
Gross Output:—	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Potatoes	2 2 10	2 1 8	2 16 5	3 8 11
Cattle, sheep and wool	5 0 8	4 10 1	5 13 6	6 14 5
Dairy produce	11 1 7	10 10 2	9 2 11	6 15 2
Poultry and eggs	15 9 9	9 15 8	6 0 4	3 4 11
Pigs	9 3 7	6 14 7	7 15 7	3 11 0
Other items	1 10 8	2 3 6	3 0 5	3 10 11
Total	44 9 1	35 15 8	34 9 2	27 5 4
Raw Materials:—				
Purchased feeding stuffs	20 14 5	13 7 0	12 5 7	6 12 3
Purchased seed	0 14 4	0 11 11	0 12 10	0 13 6
Net Output:— (Gross output less raw materials)	23 0 4	21 16 9	21 10 9	19 19 7
Running Costs:—				
Fertilisers	0 18 9	1 1 11	1 3 6	1 9 5
Labour	4 4 3	4 14 0	5 16 6	5 14 2
Rent and rates	0 19 0	0 18 0	0 18 9	0 17 9
Depreciation	1 18 0	1 19 2	1 15 7	1 9 7
Repairs	1 19 6	1 8 7	1 11 6	1 12 0
Miscellaneous	2 14 1	3 0 2	2 15 10	2 12 4
Total	12 13 7	13 1 10	14 1 8	13 15 3
Net Profit	10 6 9	8 14 11	7 9 1	6 4 4

Reports from the Counties

The results from five oat variety trials and three fodder beet variety trials carried out in County Antrim during 1952, and from two fodder beet variety trials and two fodder beet manurial trials in County Londonderry are summarised this month.

OAT VARIETY TRIALS

Two series of oat variety trials were carried out in Antrim last year. One comprised seven varieties of oats regarded as being suitable for soils of medium to high fertility, while the other was a comparison of five varieties suitable for soils of lower fertility and at an altitude of over 600 feet above sea level.

The sites selected for the trials were reasonably representative of the conditions generally prevailing in the districts and care was taken to ensure that the plots at individual centres were on soil that was uniformly even as regards depth, texture and fertility. The farms of students at agricultural classes were chosen for the trials.

The varieties were grown in adjacent one-eighth acre plots separated by one yard wide paths to prevent mixing and to facilitate inspection and harvesting. The same number of germinable seeds was sown on each plot, the actual seed rate being equivalent to about 14 stones per statute acre of a sample of medium-sized grain. All the seed was dressed with an organo-mercurial powder to prevent smut and leaf stripe. In each case, the experimental area

received the same manurial and cultural treatment as that given by the farmer to the remainder of the field.

The produce of each plot was harvested and threshed separately, and the yields of both grain and straw obtained.

Good Soil Tests

One of these was carried out by each of the Agricultural Advisory Officers, on farms owned by the following :—

1. Mr. D. Kane, Ballinlea, Ballycastle.
2. Mr. W. Stewart, Size Hill, Ballyclare.
3. Mr. J. Taylor, Gortaheron, Portglenone.

The crop was taken after potatoes at centres 1 and 2, and after lea at centre 3. A dressing of 3 cwt. special potato manure per acre was given at centre 2, and of 1 cwt. sulphate of ammonia and 1½ cwt. superphosphate per acre at centre 3. The seed germinated well and a uniform stand of plants of all varieties was obtained at the three centres.

Threshing took place at centres 1 and 2 in the autumn and at centre 3 in the spring. The yields of grain and straw were as follows :—

Yields per Acre

Variety	Ballycastle		Ballyclare		Portglenone		Average of 3 tests	
	Grain	Straw	Grain	Straw	Grain	Straw	Grain	Straw
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Abed Minor	29	40	30¼	40	24½	26	28	35
Glasnevin Triumph	24	33	29	48	23	26	25¼	36
Steel (Sun II)	23	28	26	34	23½	32	24	31
Stormont Arrow	22½	37	24	49	20¾	26	22¼	37
S.84	22¼	30	21¾	38	20¾	25	21½	31
Craig's Afterlea	18¼	35	21	51	16	25	18½	37
Svalof Blenda	25	31	—	—	22¾	18	—	—

It will be seen that the yields of all varieties except Craig's Afterlea were very satisfactory. The crop of that variety was ripe one week sooner than those of the others and consequently suffered somewhat from the depredations of wild birds. As the Portglenone crops were not threshed until the spring, the yields are not strictly comparable with those at the other centres since the moisture content of both the grain and straw is considerably lower then than in the autumn, which would affect the yields obtained.

The greater the number of trials the more reliable is the comparison of the cropping capacity of the different varieties as determined by the average results. Accordingly, the yields obtained in similar trials in County Antrim in previous years are summarised in respect of the varieties represented. In 1950 and 1951, Glasnevin Triumph, Abed Minor, Steel and S.84, were tested at six centres and the true average yield of each variety is given in the following table, together with the average yield from all nine tests :—

VARIETY	Average of 6 tests in 1950 and 1951		Average of 9 tests in 1950, 1951 & 1952	
	Grain	Straw	Grain	Straw
	cwt.	cwt.	cwt.	cwt.
Glasnevin Triumph	20¾	33½	22½	34
Abed Minor	18½	28	21½	30½
Steel	18½	30	20½	30
S.84	17¼	29½	18¾	30

Poorer Soil Tests

These were located on the farms of :—

1. Messrs. Boyle Bros., Ballybradden, Loughguile.
2. Mr. S. J. McKay, Little Ballymena, Broughshane.

The crops were taken after potatoes at both centres. At centre 2 a dressing of 1 cwt. sulphate of ammonia and 2 cwt. superphosphate per acre was applied at sowing time.

The results were as follows :—

Yields per Acre

Variety	Loughguile		Broughshane		Average of 2 tests	
	Grain	Straw	Grain	Straw	Grain	Straw
	cwt.	cwt.	cwt.	cwt.	cwt.	cwt.
Stormont Kern	17½	40	16½	43	17	41½
Utility	13½	39	14¼	34	13¾	36½
Stormont Grandee	11¾	37	13¼	42	12½	39½
Ayr Line	11½	38	13	39	12¼	38½
Richland Iowa 105	1½	20	10	26	5¾	23

Stormont Kern produced the highest yield of grain at both centres and has occupied a similar position in previous years' trials. In view of this, and of the fact that the straw is of good feeding value, it is surprising that the variety is not more widely grown on land at the higher altitudes. Richland Iowa 105 was tested for the first time last year, and as it gave very disappointing yields it will not be included in future trials. Stormont Kern, Stormont Grandee, Ayr Line and Utility were included in the trials at five centres in 1950 and 1951 and the average yield of each variety at these centres, and also at the seven centres over the three years, are given in the following table :—

Yields per Acre

VARIETY	Average of 5 tests in 1950 and 1951		Average of 7 tests in 1950, 1951 and 1952	
	Grain	Straw	Grain	Straw
	cwt.	cwt.	cwt.	cwt.
Stormont Kern	18½	33	18	35½
Stormont Grandee	16	35¼	15	36½
Ayr Line	16	31½	15	33½
Utility	15½	31½	15	33

1953 Trials

This season's oat variety trials in Antrim may be seen on the farms of:—

Mr. J. A. Baxter, Hunting Cairn, Ballyboley, Ballynure.

Mr. J. Graham, Ballyligpatrick, Broughshane.

Mr. S. McCauley, Layde, Cushendall.

Mr. J. McKinstry, Henryfield, Ballyclare

Mr. T. Morrow, Drumcrow, Carnalbana.

Two new varieties are included, namely, Forward in the lowland trials, and Bell in the hill land trials.

FODDER BEET VARIETY TRIALS

Experiments to compare the yield of crop and of dry matter from three varieties of fodder beet were carried out at three centres in County Antrim and two in County Londonderry. The varieties were Hunsballe X, Pajbjerg Rex X and Red Otofte X, and duplicate plots of each were laid out in the form of a randomised block to provide six plots at each centre. The land selected was representative of that found in the districts; it is reasonably well supplied with lime as fodder beet cannot be grown successfully in sour soil.

Antrim: The tests in this county were arranged on the farms of :—

1. Mr. G. Hanna, Ballyboley, Larne.

2. Mr. D. A. Stewart-Moore, Ballydivity, Dervock.

3. Messrs. E. & J. Wallace, Ballynoe, Antrim.

The crop was grown after oats at the Ballyboley centre, and after pasture at the other two centres. There was no difficulty in preparing a good seedbed in the lea ground, as the weather during the spring was particularly suitable for doing so. A dressing of 20 tons farmyard manure per acre was applied before the land was ploughed and 8 cwt. of a mixture consisting of 2 parts sulphate of ammonia, 4 parts superphosphate and 2 parts muriate of potash, per acre at the time of sowing. The seed was sown on 11th April at centre 1, on 16th at centre 3 and on 23rd at centre 2, the rate of seeding in each case being 15 lb. per acre.

Germination of the seed was reasonably satisfactory; the plants of Red Otofte X appeared to grow more slowly in the early stages than those of the other two varieties, but they made up the leeway later. The plants were singled to a distance of 8 inches apart and, to encourage their rapid growth, a dressing of 2 cwt. per acre of sulphate of ammonia was applied after singling. It was appreciated that fodder beet plants cannot compete with weeds and, consequently, persistent and thorough cultivations were given to keep the latter in check.

The crops were harvested towards the end of October, and the yields of roots and tops at each centre from the different varieties were as follows :—

ROOTS:

Yields per Acre

Centre	Hunsballe X		Pajbjerg Rex X		Red Otofte X	
	T.	C.	T.	C.	T.	C.
1	13	17	18	9½	13	16
2	11	7½	14	10	16	6
3	14	5	18	0½	18	13
Average	13	3	17	0	16	5

TOPS :

Yields per Acre

Centre	Hunsballe X		Pajbjerg Rex X		Red Otofte X	
	T.	C.	T.	C.	T.	C.
1	12	0	12	15	10	19
2	12	17	13	6	13	2
3	19	6	20	16	17	13
Average	14	14	15	12	13	18

Representative samples of the roots of each variety were analysed to determine the percentage of dry matter contained in them. Previous analyses had indicated that there was no significant difference between the varieties in respect of dry matter in the leaves, the average in each case being about 10 per cent.

The percentage dry matter in the roots and the calculated total yield of dry matter per acre in the roots and tops of each variety were :—

PAJBJERG REX X

Centre	Percentage dry matter in roots	Total yield of dry matter	
		T.	C.
1	21.58	5	5
2	19.63	4	4
3	18.85	5	10
Average	20.02	5	0

RED OTOFTE X

Centre	Percentage dry matter in roots	Total yield of dry matter	
		T.	C.
1	18.97	3	14
2	18.51	4	6
3	19.34	5	7
Average	18.94	4	9

HUNSBALLE X

Centre	Percentage dry matter in roots	Total yield of dry matter	
		T.	C.
1	21.68	4	4
2	23.57	3	19
3	22.48	5	3
Average	22.58	4	9

Taking the average of the three tests, there was no appreciable difference between the varieties, as regards either the yield of dry matter produced by the roots or the total yield of dry matter from the roots and tops. The roots of Hunsballe X were the most difficult to lift and clean, because of the much branched root system. Those of Red Otofte X were well shaped, easily harvested and required little cleaning before feeding. However, this shallow-rooting variety must be carefully cultivated, as otherwise the plants may be disturbed by implements. The roots of Pajbjerg Rex X were intermediate between those of the other two varieties as regards ease of lifting and cleaning.

These varieties were tested at three centres in County Antrim, in 1951, and the average yield of dry matter per acre produced by each at these centres, and at the six centres in the two years' trials, were as follows :—

Variety	Yield of dry matter (3 tests, 1951)		Yield of dry matter (6 tests, 1951 & 1952)	
	T.	C.	T.	C.
Pajbjerg Rex X	4	13	4	16½
Hunsballe X	4	19	4	14
Red Otofte X	4	1	4	5

Londonderry: The tests were carried out on the farms of :—

1. Mr. J. A. K. Anderson, Plantation, Dungleady, Upperlands.

2. Mr. W. Hamill, Ballindreen, Coleraine.

The field at centre 1 in which the test was arranged is a rich, medium loam and had been in crop for the previous three years. A dressing of 10 tons farmyard manure per acre was ploughed down, and a similar quantity together with 8 cwt. per acre of a mixture consisting of 2 parts sulphate of ammonia, 4 parts superphosphate and 2 parts muriate of potash, was applied in the drills. Borax was applied at the rate of 20 lb. per acre to one plot of each variety. The seed was sown on 23rd April, at the rate of 14 lb. per acre in 26 inch drills, and the plants were singled to a distance of 8 inches apart.

The experimental area at centre 2 is a heavy loam in a high state of fertility. The manurial treatment was similar to that at centre 1, except that all the farmyard manure was ploughed down and a top dressing of 2 cwt. sulphate of ammonia per acre was applied after singling. Borax was mixed with the artificial fertilisers, applied to all the plots at a rate which supplied 16 lb. per acre. The seed was sown on 7th May and the plants were singled to a distance of 8 inches apart.

At both centres the crops made excellent growth, despite the abnormally dry weather which prevailed throughout the greater part of the season. There was no sign of crown rot in any of the varieties at either centre, and thorough cultivations kept the crops free from weeds.

The yields obtained from the different varieties at each centre were :—

ROOTS:

Yields per Acre

Centre	Hunsballe X		Pajbjerg Rex X		Red Otofte X	
	T.	C.	T.	C.	T.	C.
1	17	10	21	15	24	0
2	17	5	23	7	24	0
Average	17	7½	22	11	24	0

TOPS:

Yields per Acre

Centre	Hunsballe X		Pajbjerg Rex X		Red Otofte X	
	T.	C.	T.	C.	T.	C.
1	20	10	20	10	18	10
2	19	5	24	7	23	7
Average	19	17½	22	8½	20	18½

The percentage of dry matter in the roots and the calculated total yield of dry matter in the roots and tops of each variety were as follows :—

PAJBJERG REX X

Centre	Percentage dry matter in roots	Total yield of dry matter
		T. C.
1	20.18	6 9
2	18.35	6 14½
Average	19.26	6 12

HUNSBALLE X

Centre	Percentage dry matter in roots	Total yield of dry matter
		T. C.
1	23.83	6 4½
2	22.13	5 15
Average	22.98	6 0

RED OTOFTE X

Centre	Percentage dry matter in roots	Total yield of dry matter
		T. C.
1	19.42	6 10
2	18.25	6 14½
Average	18.83	6 12

There was not a substantial difference between the varieties, as regards total yield of dry matter, at centre 1; but both Pajbjerg Rex X and Red Otofte X produced about 1 ton more than Hunsballe X, at centre 2. The varietal difference in respect of comparative ease of lifting and cleaning, which was noted in the County Antrim trials, was evident also in these.

FODDER BEET MANURIAL TRIALS

(a) Effect of Nitrogenous Fertilisers

This was investigated by an experiment carried out on the farm of Mr. W. Wright, Ballyriff, Magherafelt, in a field of rich, medium loam soil overlying basalt which had produced a heavy crop of seeds hay the previous year. The soil was already well supplied with lime, and the manurial treatment per acre was 20 tons farmyard manure, along with a mixture consisting of 4 cwt. superphosphate, 2 cwt. muriate of potash and 20 lb. borax. In addition, duplicated plots received a dressing of sulphate of ammonia at the following rates per acre :—

A. 1 cwt. at sowing.
B. 1 cwt. at sowing and 1 cwt. at singling.
C. 2 cwt. at sowing.
D. 2 cwt. at sowing and 1 cwt. at singling.

Seed of the variety Hunsballe X was sown on 20th May, and the conditions regarding the layout of the experiment, rate of seeding, and time and distance of singling, were similar to those in the variety tests. The seed-bed was very dry at the time of sowing, which resulted in the plants being very slow to reach the correct stage of growth for singling. The dry weather continued throughout the greater part of the season and this, together with the late sowing, may have been responsible for the low yields obtained.

The following table gives the yields per acre, shown as the average of the duplicated plots :—

Nitrogen applied as at	Average yield from two plots		
	Roots	Tops	Dry matter in total crop
	T. C.	T. C.	T. C.
A	11 0	11 0	3 13
B	10 15	11 10	3 11
C	10 15	10 15	3 12½
D	11 0	12 0	3 15

(b) Effect of Potash and Salt

This was investigated by an experiment on the farm of Miss D. Robertson, Dogleap, Limavady, in a field having a sandy loam soil. The experimental area was dressed with 20 tons farmyard manure and a mixture of 2 cwt. sulphate of ammonia, 4 cwt. superphosphate and 20 lb. borax per acre before sowing the seed, followed by 1 cwt. sulphate of ammonia per acre, immediately after singling. In addition, duplicate plots were dressed at the time of sowing, 3rd May, as follows :—

A. 2 cwt. muriate of potash per acre.
B. 4 cwt. agricultural salt per acre.

C. 1 cwt. muriate of potash and 2 cwt. agricultural salt per acre.
D. Neither salt nor potash.

The average yields per acre of roots, tops and dry matter from the duplicated plots were :—

Additional manurial treatment as at	Average of the duplicated plots					
	Roots		Tops		Dry matter in total crop	
	T.	C.	T.	C.	T.	C.
A	10	15	13	5	3	16½
B	10	10	13	5	3	15½
C	10	7½	13	12	3	15
D	10	5	11	10	3	9½

The yields of crop and of dry matter were increased by the application of muriate of potash and/or agricultural salt, but there was not a significant difference between those obtained from the various treatments. However, it must be remembered that a heavy dressing of farmyard manure, which is rich in potash, was applied, and that a lack of moisture and not of fertilisers may have been the limiting factor to growth, as the weather was abnormally dry during the growing season and the soil a sandy loam.

Calf Rearing by Multiple Suckling

There is no doubt that the particular item which attracted most attention and led to the greatest amount of discussion in the livestock section of the Ministry's recent Educational Exhibit at Balmoral Show was the one demonstrating the rearing of calves by the multiple suckling method. That so much interest was taken in this exhibit is most gratifying because of the obvious fact that the output of cattle of all classes, and of milk, depends fundamentally on the number of calves reared. Calf rearing is a basic requirement of the cattle industry and merited the interest that was shown.

Unfortunately, there is not nearly enough calves being reared here to provide the number of store cattle required annually for fattening on Northern Ireland pastures. Records from the grading centres show that approximately half of the fat cattle presented have been home reared, the other half being imported from the Republic of Ireland, mostly as 2 to 2½ year old stores.

In the Republic, milk is used mainly for butter making, with the result that separated milk for calf rearing is available in very much greater proportions than in Northern Ireland. It may be argued that, because of this, calves can be reared better and raised more cheaply there than in Northern Ireland where there is practically no separated milk and where whole milk has a high selling value; and, therefore, the purchase of such stores for finishing in Northern Ireland is a sound commercial practice. That contention may be true if the supply of store cattle is approximately equal to the demand, and the price at which they can be bought is such that the man who buys and fattens them can reasonably expect a fair margin of profit.

What is the present position in the store cattle market and what is it likely to be in the future ? The demand is so much in excess of the supply that from £7 to £7 10s. 0d. per live weight cwt. is being paid by Northern Ireland fatteners in order to get stock to consume their grass. This means an expenditure of from £70 to £80 per beast, and there are few but who would say that at such prices there is a wide margin of profit for the rearer.

There is no indication whatever that the supply of stores from the Republic will increase. In fact, the indications are that it is likely to get less and less. Should these indications prove correct, what use will be made of the pastures here ? Further, it must be remembered that, on being graded, an imported, or punched, fat beast fetches 4/6 per

cwt. less than a home-bred animal of similar quality, which means a difference of from £2 to £3 per head.

Surely this state of affairs provides food for serious thought. Is it in the best interests of Northern Ireland herd owners that half the cattle they fatten are imported ? Is it a practical proposition to try to fill the gap by rearing more calves ? The Ministry believes that it is both practical and profitable, and it was that belief which prompted the staging of the multiple suckling calf rearing exhibit at Balmoral Show.

The exhibit was staged in duplicate. One cow and her ten calves came from the Ministry's grassland centre at Riversdale, County Fermanagh, and the other one with her eleven calves from the Ministry's farm at Loughgall, County Armagh. Each cow in her present lactation had reared two lots of four calves, and was then rearing a third lot—two in the case of one cow, and three in the case of the other. The cows calved last November and, within a few days, four newly-born calves were put to each. No difficulty was experienced in getting the cows to take the calves, or in getting the calves to suck. The calves did not remain continually with the cow, and their separation from the cow after sucking is a very important point. They were put to the cow twice daily—at the times when normally she would be milked—and allowed to stay with her only while sucking—about 15 minutes each time. From the second week a good calf meal was fed as consumed. After about twelve weeks the calves were finally weaned and were then taking almost 3 lb. of calf meal per head daily.

About a week previously—after 11 weeks from calving—four other newly-born calves were obtained for each cow. These, like the previous ones, were left with the cow only while sucking, twice daily. They were put to her at each sucking before the older lot, and were not permitted to take all the milk she had. The older ones were then allowed to take what was left. The younger ones were allowed to remain a little longer at each successive sucking, with the result that after 8 to 10 days the older ones were completely weaned, and the younger ones had been brought gradually to their maximum consumption without suffering from scouring. They were treated similarly to the first lot as regards additional feeding.

Too much emphasis cannot be laid on the necessity for this over-lapping of the lots. It is essential to the welfare of both cow and calves. For the first week or so the young calves would not take all the milk the cow had, and the cow's reaction would be to dry off and she would be unlikely to regain her previous rate of production.

In due course the second lots were replaced by third lots, the method of changing from one lot to the following one being as already described. One cow had two calves in the third lot while the other had three. The reason for this difference would appear to be that the second cow was inherently a better milk producer and maintained her flow longer than the first cow, and also to the fact that the interval to her subsequent calving will be longer. This cow may actually rear one further calf after the present three are weaned, making a total of 12. This cow's calves showed more bloom all through than those of the other cow, despite the fact that they ate slightly less meal during the sucking period.

After weaning, the proprietary calf meal was replaced by a home-made mixture of 3 parts by weight crushed oats and one part linseed cake meal. The first eight calves, approximately six months old at the time of the Show, had consumed 3 cwt. of concentrates per head, and the second eight, then 3½ months old, 1¼ cwt. each. The third lot had not yet consumed any concentrates. The weaned calves were in good bloom and very well grown for age. They were past the critical stage and the good start they have had should ensure that with reasonable management they will be good thrivers throughout their lives. The good start may result in their reaching maturity half a year earlier

than if badly reared, and the consequent saving of six months feeding later will far more than compensate for what may appear to be an expensive method of rearing.

One of the reasons why graziers often do not attempt to rear the cattle they fatten is because of the labour involved in hand rearing. The multiple suckling method provides reared calves with the minimum of labour, and, what is even more important, it provides animals which develop quickly and mature early. Scouring and digestive troubles and deaths are very rare in suckled calves. So far the multiple suckling method has been practised only to a limited extent in Northern Ireland, but the few farmers who have tried it are well satisfied. Recently, Mr. Gordon Greeves, a County Down farmer, gave a most interesting and instructive broadcast on his own experiences with this method of rearing calves.

Multiple suckling is practised very extensively in England, especially in dairy and dual-purpose herds. The numbers reared per cow in a lactation are usually four, four, two and one, making a total of eleven, but of course the numbers in each lot depend on the milking capacity of the individual cows. If the interval to the following calving is unduly long the numbers in the later lots may be greater, and there may be more lots. It must be fully realised that to nurse up to four calves at one time and to take three or four lots in succession, a cow must be of good milking capacity, and, further, she must be fed and managed as such. These two points are extremely important. A poor milking cow or a badly fed one will not be capable of rearing many calves. The cost of maintaining the cow must be borne by the calves she rears. If the number is small the cost per calf will be relatively high, and the greater the number the lower the cost per calf.

The custom is to select certain cows for rearing the calves and to milk the others in the usual way. In large herds, where many calves are born, no difficulty in finding a sufficient number to put to a cow at the same time is likely to arise, but this may be a problem in small herds where few calves are born and some must be purchased. However, the difficulty is not insurmountable if foresight is exercised and plans are made in advance. More calves are offered for slaughter each month during the autumn and winter than in the other months of the year.

The best time to start a cow on the multiple system is during September, October or November, when calves are in better supply and there is a wider choice, and the price is low. The advantage does not end with the first lot. The time for getting the second lot will come while there is still a fair supply. The lowest numbers, for the third and fourth lots, are required when prices are high. Further, the first two lots are well grown for age and can make good use of the pasture when turned out in May. They are big and strong by the autumn and well able to withstand the more rigorous conditions during the following winter.

Supply of Calves

While it is not contended that multiple suckling will actually produce more calves, it is believed that the adoption of the system will result in more calves being reared; further, that having been well reared they will reach maturity earlier and leave a bigger margin of profit than is usually the case. The real need, however, is to have more calves born, and these will not be born unless more heifers and more cows are mated every year. The finding of these additional females for service is the first essential towards the solution of the problem of producing more calves.

Large numbers of beef type heifers—Shorthorns, Blue-greys, Black Pollies, and White-heads—are slaughtered annually without any attempt being made to get them to reproduce the species. Could these heifers be economically used to produce one crop of calves before they are slaughtered? An experiment on a fairly large scale, to get information on this point,

was carried out by the late Mr. A. A. McGuckian at Massereene Park. The heifers were allowed to suckle their own calves and were fattened as quickly as they could be afterwards. The profit or loss of the venture depended on whether the heifers were ready for grading while eligible for cow-heifer price. In practice it was found that a comparatively large proportion had passed the cow-heifer stage before being graded, and the resulting fall in value removed any hope of a sufficient profit being made. The change from the previous cow-heifer grade to the present young cow one will make a great difference in the financial aspect in such a case.

Can any useful information be gained from pursuing Mr. McGuckian's idea, but along a slightly different line? Is it necessary that the heifers should rear their own calves? Can they be dried off immediately after calving and finished for sale as beef within a reasonably short time afterwards? What use can be made of the calves? Will the value of the calf be sufficient to compensate for the additional time it may be necessary to keep the heifer and for the slight reduction in the value per cwt. of her beef? These are questions to which definite answers cannot be given at this stage. However, they may be discussed very briefly.

The heifers being of beef types would readily dry off and would very quickly lay on flesh. This would be especially so if the calves were dropped, say in February, March and April, which is not an unnatural time for heifers to calve. If multiple suckling becomes an established practice on the lines indicated the calves will find a ready sale, or some of the heifers may be used to suckle the calves of other heifers in the herd. It is very unlikely that the price of the calf would fall below the amount of the calf subsidy which at present is £5. The calves being from beef type dams and colour-marking beef bulls would fetch at present from £8 to £10. The amount received for the calf would be a sort of bonus additional to that received for the heifer.

If the practice is adopted the bulls used on the heifers should be of the colour-marking beef type. One difficulty undoubtedly would be that from 12 to 14 months must elapse from the time the heifer is served until she is graded, and in very many cases she will not be in the hands of the fattener during this length of time. That difficulty will not arise in the case of the man who is rearing the beasts he fattens, or who is buying them in as yearlings or six-quarter olds. In any case it is believed that the difficulty can be surmounted as the practice develops.

Cattle in Northern Ireland are in very short supply and the number available for purchase elsewhere is not likely to increase; in fact, it is more likely to decrease. That being so it does not seem that the general practice of slaughtering large numbers of good, well-bred, maiden beef heifers is a sound one. Surely some adjustment or alteration in the present practice is necessary in the circumstances.

No branch of agriculture has received more attention during and since the war than the improvement of grassland, and the results have been phenomenal. The improvement in the stock carrying capacity of Northern Ireland pastures in several instances is almost unbelievable, and the development generally is only in its infancy. Without any doubt, in a comparatively few years, the stock carrying capacity of the farms will be far greater than it ever has been.

Two questions arise directly from this development in pasture production. Will the increased output of grass be converted into human food? What is the medium through which the conversion will be made? The answer to the first question depends on what is the correct answer to the second one. To some extent sheep may be the converters but the medium very largely must be cattle, and without sufficient cattle the full conversion will not be possible.

An eminent authority has remarked truly that it takes as long to produce a fat bullock or a milking heifer as to build a battleship—nearly four years.

Matings in 1953 will not produce fat bullocks or springing heifers until 1956 or 1957. Therefore, any plan to get increased numbers of beef or milk cattle must be made and put into operation some years before the production is achieved. That more and more beef is required, and that the produce will find a ready sale, is beyond any doubt. Hence, the question of increasing very considerably the cattle population of Northern Ireland is of the greatest possible importance to farmers as a whole. The multiple suckling of calves exhibit was staged, and this article is written, with the same object in view, namely, to provide food for serious thought as to the ways and means by which that increase may be obtained.

Seasonal Notes

THE LAND

Destroying Rushes

Weeds are the cause of a far greater loss of output from pastures than is generally realised. Unless a suitable mixture of machine-cleaned seed is sown on a fine, firm, clean seed bed that is well manured, a good sward of nutritious herbage will not be obtained and weeds will take possession of a large proportion of the ground. Consequently, the palatability and feeding value of the resulting pasture will be seriously impaired and its productivity greatly depressed.

The common rush is one of the most undesirable weeds of grassland, and pastures in which rushes are prevalent cannot possibly contribute their full quota of food for stock. Hence, it is incumbent on the owners of rush-infested pastures to banish the rushes if full use is to be made of the land.

Each rush plant produces countless seeds, and it has been estimated that, on an average piece of rushy land, up to eight million seeds may be shed per square yard in one season. Seeds shed in late summer and in autumn will not germinate before the following April, but they remain viable in the soil for many years and germinate freely when the land is again tilled. The seeds have a high germinating capacity but, fortunately, the young seedlings are very vulnerable to adverse conditions. They cannot withstand a lack of water, even for a few hours, nor can they compete with vigorously growing grasses and clovers.

Where the rainfall is low, rushes flourish only when the land is waterlogged, but in countries such as Northern Ireland, where the rainfall is comparatively high, they may become a menace under conditions of low fertility, even though the drainage is satisfactory. The seeds germinate readily and the seedlings flourish particularly well in soils which tend to be impervious and in which surface water is absorbed slowly, even should the drainage be adequate. In waterlogged soils and in those which are well drained but in a low state of fertility the rush seedlings have an excellent opportunity to succeed. Such conditions inhibit vigorous growth of the grasses and clovers and the seedlings are thus given free scope to flourish, since there is little competition from the pasture plants.

Where the presence of rushes is due primarily to the land being waterlogged, drainage is an essential in the destruction programme, as rushes will persist in such land despite the adoption of other measures which may be taken to banish them. On well-drained land, rushes may be banished by cutting them closely to the ground during the summer and autumn, followed by applications of lime and fertilisers. Cutting rushes lowers the vitality of the plants, and the oftener they are cut in any one year the sooner will they disappear. If time cannot be found to cut them more often than twice in the year, the best times to do so are in July and October. Cutting in July is essential and should never be omitted or postponed until later.

On dry land reasonable control of rushes may be achieved also by spraying them with a solution containing approximately 1 gallon of a hormone

weed-killer in 100 gallons water per acre. Spraying should be done in May or June, and when the rushes are dry.

In conjunction with drainage, where this is necessary, and either frequent cutting or the spraying of the rushes with a hormone weed-killer, adequate dressings of lime and fertilisers should be applied to encourage vigorous growth of the herbage and to improve its quality. It is again emphasised that the best means of eradicating rushes from well-drained land is by creating conditions which will enable the grasses and clovers to exert strong competition by vigorous growth.

Cattle will eat young rushes readily and the sward should be grazed well with older animals after it has been treated as advised above. It is not wise to allow young cattle to graze a pasture that is infested with rushes, as the rushes, if eaten, are liable to remain in the stomach in the form of a ball which may prove fatal.

* * * *

Utilise Idle Acres

Normally, the greater proportion of land under the plough produces only one crop per season and, consequently, the land lies idle for many months of the year. In the case of some crops, such as cereals in late seasons and late districts, and maincrop potatoes, the land is not cleared in time to make it worth while sowing a second crop. There may, therefore, be no alternative to leaving it idle until the following spring, and at any rate there would be little growth during the winter months.

It is a serious matter, however, to leave idle during the growing season any land that could be utilised to produce more much needed food. For instance, crops of early potatoes are harvested in late June and early July, the land is cleared of the flax crop from late July onwards and, in early districts and especially in an early season, cereal crops may be removed soon after the middle of August. In all these cases, where the land is not sown out to grass, another crop should be sown as soon as the first crop has been removed.

Farmers should make every effort to grow catch crops on idle land. Apart from the valuable feeding they provide for stock at a time when succulent foods are scarce, they have the following advantages :—

(1) The preparation of the seed-bed for the crop, and the crop itself, help to keep weeds in check.

(2) Valuable manurial constituents are conserved in the soil, and the fertility of the soil is thus raised. A serious loss of plant nutrients may occur when land is bare during the winter and this is prevented by keeping the soil covered with a crop.

(3) The roots and residue of the catch crop when ploughed down in spring add extra humus to the soil.

There is a varied selection of suitable catch crops, the choice depending largely on the time of year at which the crop is to be sown. Crops such as rape, Italian ryegrass, and white mustard are suitable for sowing to provide grazing in autumn and early winter. For this purpose the seed should be sown not later than the first week in August, and earlier if possible.

In general, the only land which will be cleared in time for the sowing of these crops is that in which early potatoes were grown. Such land need not be ploughed, but the potato tops and any weeds should be removed and the seed sown and harrowed in as soon as possible after the potatoes have been dug.

The following are four examples of seedings per statute acre to produce suitable catch crops for use in late autumn and early winter :—

(1) 22 to 28 lb. Italian ryegrass.
(2) 4 lb. rape, 16 lb. Italian ryegrass, 6 to 7 lb. white mustard.
(3) 8 to 12 lb. rape.
(4) 20 lb. white mustard.

Mustard must be used before the winter sets in as the crop will not stand severe weather. As rape is rich in protein, a crop of it or one containing it will be valuable for milk production.

Catch crops for feeding green in spring will usually be successful if sown up to the middle of September,

and by the end of September in the earlier districts. In all localities, however, sowing should be done in August, if at all possible.

For the production of a catch crop for use in spring, a suitable seeds mixture is 5 stones winter vetches, 6 stones rye and 12 lb. Italian ryegrass per acre. Rye sown alone at the rate of 16 stones per acre, or rape sown alone at the rate of from 9 to 10 lb. per acre, would also be satisfactory. Except in the case of land from which potatoes have been dug, the ground should be ploughed prior to the sowing of these crops.

When being grown after potatoes which have been well manured, the crops will not require further manuring on most soils, except a dressing of from 1 to 2 cwt. superphosphate, per acre, applied at the time of sowing the seed. If being grown after corn or flax, farmyard manure may be ploughed in, or a dressing of a mixture of 2 cwt. superphosphate, ¾ cwt. muriate of potash and 1 cwt. sulphate of ammonia applied to each acre before sowing the seed.

* * * *

Protect Potato Crops being grown for Seed

Blighted tubers in a sample of seed potatoes are a most serious fault for which the farmer pays dearly in lowered returns for the crop. The losses from this cause are very heavy each year. It is imperative that seed intended for shipment should be free from blight disease, and farmers are again urged most strongly to spray their crops at least twice, and if possible, three times, to prevent blight. As was pointed out in last month's *"Report,"* it is essential that the sprayings should be carried out thoroughly and the first one completed before there is any evidence of the disease on the foliage.

The tubers become infected as a result of diseased spores being washed down from the foliage. Hence, in addition to *timely and repeated* sprayings, the drills should be kept earthed up well during the growing season. By so doing, not only will the developing tubers be well covered by soil, but the risk of spores reaching them will be lessened when the drills are topped up to a narrow point which throws off the rain.

Profits from seed potato production depend to a considerable extent on having as large a proportion as possible of the crop of seed size (1¼ inches to 2¼ inches). In the case of crops which have been certified, and of which the produce is intended for the seed trade, the tops should either be cut off, or killed by spraying them with a chemical, when most of the tubers are of that size. In an average season that stage is usually reached about the end of July.

A further advantage of destroying the tops is that blight infection is prevented from spreading to the tubers before, or at, digging time. Consequently, there is no risk of the tubers being contaminated with blight and they will keep better in storage and be satisfactory for shipment.

For killing the foliage by spraying, one of the following solutions may be used at a rate of from 100 to 120 gallons per acre, depending on the size of the tops :—

(1) Sodium chlorate, at a strength of 9 lb. sodium chlorate in 40 gallons of water.

(2) Copper sulphate (bluestone) and sulphuric acid, at a strength of 12 lb. copper sulphate and 1 gallon commercial sulphuric acid in 40 gallons of water.

(3) Sulphuric acid alone, at a strength of 5 gallons commercial sulphuric acid in 40 gallons of water.

These solutions may be applied with an ordinary sprayer, provided the machine is washed out thoroughly immediately after use. In the case of the solutions containing sulphuric acid great care must be taken to prevent the spray coming in contact with the skin or clothes of the operator, or with the horse if a horse-drawn sprayer is used. *When preparing the solutions the acid must always be added slowly to the bluestone solution, or the water, as the case may be; and not the bluestone solution or the water to the acid.*

Great care also should be exercised in the handling of the sodium chlorate solution. Clothes with which this solution has come in contact are rendered inflammable, particularly after drying.

Spraying should be done only on a fine day. The crop should not be dug until at least ten days after the tops have been killed, in order to give time for the skin of the tubers to become sufficiently hardened to resist injury.

THE LIVESTOCK

Feeding the Nurse Sow

The feeding of a sow during the four weeks following farrowing requires careful attention. Insufficient food will lead to a reduction in the flow of milk, while overfeeding, or the use of unsuitable foods, may cause digestive troubles in both the sow and the young pigs.

For the first three days the food should consist of a sloppy mash made of wheat offals and milk, and, if the weather is cold, it is advisable to offer this in a slightly heated state. Thereafter, a suitable diet may consist of the following :—

50 per cent.	barley meal
20 ,, ,,	maize meal
20 ,, ,,	wheat offals
10 ,, ,,	fish meal or its equivalent.

Separated milk is an excellent food for a suckling sow and, if sufficient is available to provide one gallon daily, the fish meal or other protein supplement may be omitted from the meal mixture. If the sow cannot be given milk and the meal mixture does not contain fish meal or meat and bone meal, 3 lb. of a mineral mixture consisting of equal parts of ground limestone, common salt and steamed bone flour should be added to each cwt. of meals. Also, it is a wise precaution to incorporate 1 pint of good quality cod liver oil in each cwt. of meal mixture, particularly in winter.

Part of the meal allowance may be replaced by potatoes or fodder beet on the basis that 4 lb. cooked potatoes or 5 lb. fodder beet will be equivalent to 1 lb. cereal meals. The fodder beet should be introduced gradually. If the diet includes potatoes or fodder beet, the proportion of protein supplement in the meal mixture should be increased at the rate of from 1 to 1½ per cent. for each lb. of meal replaced. Sows' milk is very rich in protein, containing about twice as much as cows' milk. For this reason it is essential that the suckling sow's diet should contain ample protein to enable her to produce sufficient milk for her litter.

The condition of the sow and the size of the litter will determine the quantity of food which is necessary. As a general guide it may be taken that a suckling sow requires 2 lb. meals, or meal equivalent, for herself, plus 1 lb. for each pig in the litter, daily.

* * * *

Prevent " Redwater "

The parasite which causes this disease is transmitted from beast to beast by the common cattle tick during the process of feeding on the animals. The tick may transmit the disease directly from affected animals to other cattle by blood sucking, or it may transmit the disease to its larvae, which, in turn, attack and infect other cattle. Consequently, the most satisfactory method of preventing outbreaks is to concentrate on the destruction of the ticks.

" Redwater " disease is usually associated with old, rough grazing which has not been broken up for a number of years. This affords ideal shelter for the breeding and multiplication of the ticks, and, should these parasites be present, outbreaks of the disease in cattle grazing on such pastures are likely to occur. On the other hand, cattle grazing on land which is regularly ploughed and cropped, and on which no shelter is available for the ticks by reason of the pasture being well grazed, usually remain free from the disease.

Land on which outbreaks of "redwater" occur should be broken up, if at all possible. Where ploughing

cannot be conveniently carried out, the grass should be cut either for hay or silage, or the land cleared of all rough vegetation that may be growing on it. Patches of old coarse grass should be mown off, and bushes, whins, overgrown fences and ditches cleared, to lessen the risk of cattle becoming infected later.

The grazing of horses and sheep on land where "redwater" is prevalent offers a further method of controlling the disease, as these classes of stock are not susceptible to attack. If cattle are kept off infected land for about one year, and the land kept closely grazed with horses and sheep during that time, cattle may then be grazed on it without much risk of their contracting the disease. A further advantage in grazing sheep on infected land is that the ticks which have attached themselves to the sheep are destroyed by the dipping.

Cattle grazing on land which is known to cause "redwater" disease should be examined from time to time for the presence of ticks. These pests, in addition to transmitting the disease, are a source of worry to the beasts and retard thriving if present in large numbers. They are most usually found about the lower parts of the body, particularly inside the flanks.

In addition to transmitting "redwater" disease, ticks carry louping ill infection, tick pyaemia, tick-borne fever, etc., so that it is worth while doing everything possible to exterminate these parasites.

Many efficient tick killers are now available, and by systematically spraying the cattle and dipping the sheep, it is possible to eliminate ticks from pastures. A benzene hexachloride type of dip is the most effective against ticks and its use is strongly recommended.

The treatment for "redwater" is the administration of a prepared injection, supplies of which veterinary surgeons have at hand. It should be remembered that the blood, on which life depends, is being practically destroyed by the parasites. It is not sufficient, as so many do, to depend upon violent and repeated doses of purgative medicines to effect a cure. Such treatment is directed against the symptoms and misses the true seat of the disease, which is the blood, and may actually cause the death of the animals.

Affected animals should be housed, treated kindly and not abused in any way. The risk of sudden death from heart failure, occasioned by the weakened condition due to loss of blood makes this essential.

THE POULTRY

Bulk in the Diet

Bulky foods such as bran and grass meal are of value in poultry rations, because of their physical effect on the mash as well as for the food nutrients they supply.

Mashes having a loose consistency are eaten more readily than those of a more compact nature and, in addition, they assist in keeping the digestive tract in good order.

It should be realised, however, that in spite of bulky foods having these desirable effects, there is a limit to the extent to which they should be included in the diet. If the food is exceedingly bulky the birds will not obtain sufficient nutrients to support heavy egg production from the quantity they will be able to consume, and hence too much bulk means lowered production. During the war, when bulky foods such as vegetables, processed house scraps and a high proportion of boiled potatoes had to be used to augment the meagre meal allowance, it was found that although the birds ate the food heartily and were never hungry they were unable to obtain sufficient nourishment from it to meet the demands of high production.

Nevertheless, the judicious use of bulky foods like bran is most desirable, particularly in the case of chicks and breeders. In feeding trials, mashes containing up to 40 per cent. of bran gave excellent results when fed to chicks and growers, as well as to adult

birds. A bulky mash of this kind is ideal for breeding stock, because it keeps the birds in the lean, hard condition that is so desirable. Furthermore, it is quite a simple matter to adjust the proportion of bulky foods in accordance with the condition of the birds. Should the birds tend to lose weight, the ration should be made more concentrated by reducing the proportion of the bulky foods; conversely, such foods should be used more liberally if the birds tend to become overfat.

In the case of cereals it should be remembered that maize is a more highly concentrated food than either wheat or oats, as it contains more carbohydrate. If the birds are losing weight, more maize should be included in the diet, whereas if they are becoming too fat the proportion should be reduced.

* * * *

Disposal of Old Built-Up Litter

Those poultry keepers who have been maintaining a flock of commercial layers on the intensive system since last August and who intend to substitute a new flock of early hatched pullets for that flock will be considering how best to prepare the house for the incoming birds. If the built-up litter has been functioning properly it will now be largely of the consistency of dry soil, somewhat similar in nature to dry compost. It should be remembered that this is very valuable material, both for starting a new built-up litter programme and for putting in a house to be used for accommodating breeding stock.

None of this old litter should be transferred to the manure heap or disposed of otherwise than for littering poultry houses. Because it is richly endowed with the bacteria which are essential to the proper functioning of the built-up litter system, some of it will provide the best possible foundation for the new season's programme and it would be a mistake to clear all of it out of the house and start next season's litter by putting completely new material on the floor.

Accordingly, only sufficient of the old litter should be removed as will be necessary to bring the depth down to say four inches which will remain as the basis of the new litter programme. If the mass is uniformly dry and friable throughout its depth, and over the entire floor area, the portion to be removed may be taken from the part most convenient to the entrance and down to the floor, afterwards levelling the retained litter over the entire floor of the house. If, on the other hand, the top layer is caked, or if the litter on certain parts of the floor is less satisfactory than on others, then these parts should be cleared out, or the top layer removed, and the remainder levelled over the whole floor area.

The material removed will be most valuable for putting into other poultry houses, whether they be intended for intensively managed laying pullets or for breeders to be run on free range. For the former, its value is primarily associated with its bacterial flora, and, in general, its use should mean a greatly enhanced prospect of success with built-up litter management as compared with litter which is started with new material.

In the case of breeding stock, the value of the old litter is associated with the important matter of hatchability. It is now well known that good hatchability is dependent to a large extent on the nutrition of the hens which lay the eggs, and that unless the birds receive in their food all the vitamins and other food factors which are necessary, their eggs will be deficient in these factors and the developing embryos will not survive to the hatching stage. Thus, there will be a high proportion of casualties during the later stages of hatching, and the chicks which do manage to emerge will be weakly and difficult to rear.

Experience and experiment have shown that breeding birds can obtain from broken down litter which contains decomposed droppings, an appreciable quantity of the factors which are essential to good hatchability. Such factors can also be obtained from dried

cow manure. It is thus seen that old built-up litter in the house in which breeders are accommodated may be a valuable aid in obtaining satisfactory hatches.

This is already being recognised, and cases are known where those engaged in the production of hatching eggs are soliciting supplies of old built-up litter from commercial egg producers who are practising the system.

* * * *

Laying Test Progress Report

Three-quarters of the full term of the test was completed on 9th June, when the ninth 28-day period ended. The normal seasonal decline in egg production continued during the ninth month and the hen-housed average of 17.87 eggs per bird was 1.87 less than in the previous month, though slightly higher than in the ninth month of the last test.

Of the five principal breeds, the Light Sussex and the White Leghorn pullets had the same average, namely, 18.35 eggs each, while the Rhode Island Reds with 18.26 were not far behind. The Black Leghorns came next with 17.87 and the White Wyandottes had the disappointing average of 12.70.

Broodiness was not nearly so prevalent as in the ninth month of the previous test, only 59 birds being affected as against 99 last year. The 59 included 2 Black Leghorn and 1 Brown Leghorn pullets. The percentage of the surviving birds of the four heavy breeds which were broody at 9th June is shown in the following table, with corresponding figures for the two previous tests :—

Breed	Percentage of surviving birds broody at the end of the ninth period in :—		
	Present test	1951/52 test	1950/51 test
Buff Rock	20.0	33.3	50.0
Light Sussex	20.0	32.3	19.2
Rhode Island Red	8.7	14.1	8.7
White Wyandotte	5.3	14.6	14.5
All heavy breeds	11.7	19.2	13.1

It is worthy of note that although the Light Sussex, as is usual, were more prone to early broodiness than the Rhode Island Reds and the White Wyandottes, their egg production was better maintained than that of the birds of these two breeds, and actually equalled the average of the White Leghorns, amongst which there was no broodiness.

Evidence of the seasonal decline in production is provided by the number of pens having an average of at least 20 scoring eggs per bird being only 36 as compared with 64 in the previous period. The percentage of the pens of the different breeds which attained that standard is shown in the following table, with comparative figures for the last test :—

Breed	Percentage of pens of the breed in which an average of at least 20 scoring eggs per bird was laid in the ninth period :—		
	Present test	Last test	1950/51 test
Black Leghorn	40.0	25.0	44.4
White Leghorn	28.3	51.0	33.3
Rhode Island Red	26.0	25.0	28.3
Light Sussex	25.0	13.0	9.5
Brown Leghorn	nil	33.3	75.0

The steady improvement in the Light Sussex and the decline in the Brown Leghorns will be noted.

The best score in the ninth period was 146 eggs by Mr. Gamble's pen of Rhode Island Reds, which had the highest score also in each of the two previous periods. Next best were one of Mr. Kelsey's pens of Rhode Island Reds and Mr. Getty's pen of Light Sussex with 145 scoring eggs each, and they were followed by one-half of Mr. Telford's progeny testing entry Rhode Island Red sisters and half-sisters with 144, and by the same breeder's similar pen of White Leghorns which had a score of 143 eggs. One-half of Mrs. Bell's progeny testing entry of Rhode Island Reds followed with 139. Thus three of the six top scores were made by progeny testing pens.

The hen-housed average of the entire flock for the 36 weeks from 1st October

to 9th June, was 139.96 eggs, which is exactly four eggs higher than in the previous test. The Light Sussex, with an average of 150.89, led all the other breeds and were 7.96 eggs ahead of the White Leghorns, which in turn were 2.05 ahead of the Rhode Island Reds. On the basis of the records of the surviving birds, the average was 146.93 eggs, and the Light Sussex with 154.10 occupied the leading position amongst the principal breeds.

It is encouraging to record a decline of 2.51 per cent. in the death rate, as compared with that in the previous test.

The following are the owners of the leading pens in the different sections at 9th June, with the scores shown in brackets :—

White Wyandottes and Buff Rocks

1. Mrs. J. McWhirter, Galgorm Parks, Cullybackey, (*W.W.*) (874); 2. T. W. A. Montgomery, Drumgurland, Islandmagee, (*W.W.*) (800); 3. J. Jackson, Portmuck, Islandmagee, (*W.W.*) (795).

White Leghorns

1. D. McGookin, 35 Boneybefore, Carrickfergus, (1,048); 2. W. J. & Mrs. Alexander, Redhall, Ballycarry, (984); 3. Mrs. A. M. Dysart, Killyblight, Dungiven, (976); 4. Miss S. McKee, Ardmillan House, Killinchy, (972); 5. Miss J. McCluggage, Carnduff, Larne, (965); 6. Mrs. B. Anderson, Gortaclare, Omagh, (958); 7. C. McDonnell, Knockanally, Martinstown, (955); 8. T. Adams, Carncoagh, Rathkenny, (947).

Black Leghorns

1. Mrs. J. Buchanan, Lisbreen, Martinstown, (956); 2. Mrs. J. Bell, Springmount, Barnish, Kells, (953); 3. Mrs. Bell, Springmount, Barnish, Kells, (893).

Rhode Island Reds

1. T. H. V. Purdon, Killybrick House, Augher, (1,007); 2. Mrs. M. McClintock, Laymore, Ballymena, (997); 3. A. F. Hogg. Ballysallagh, Clandeboye, (964); 4. R. A. Irwin, Ballycastle Road, Coleraine, (946); 5, Mrs. W. A. McCloy, Hollymount, Ballykelly, (918); 6. W. J. Marshall, Tullycore, Killinchy, (913); 7. Mrs. A. T. Cairns, Clogher, Hillsborough, (901).

Light Sussex

1. T. Ferrer, Aughlish, Scarva, (1,066); 2. T. McAdam, Cogry, Doagh, (1,041); 3. Mrs. M. McCoubrey, Spa, Ballynahinch, (1,013); 4. H. A. Montgomery, Carthall House, Coleraine, (1,008); 5. E. & Mrs. Stewart, Glassdrummond, Ballynahinch, (987); 6. W. Colhoun, Crievedonnell, Drumahoe, (948).

Other Breeds

1. Mrs. J. Armstrong, Mayfield, Broughshane, (*Ancona*) (834); 2. Mrs. J. Thompson, Killeen, Limavady, (*Brown Leghorn*) (775).

Mr. Ferrer's pen of Light Sussex retained its position as leader in the whole test and Mr. McGookin's pen of White Leghorns, by scoring 131 as against 118 by Mr. McAdam's pen of Light Sussex, dispossessed that pen of second place by seven eggs and came within eighteen eggs of overtaking Mr. Ferrer's pen. Pens of Light Sussex held the fourth and fifth places and a pen of Rhode Island Reds the sixth place.

Of the twenty leading pens, eight are of White Leghorns, six of Light Sussex, four of Rhode Island Reds and two of Black Leghorns. The scores of these range from 1,066 to 946, with an average of 984.55 eggs. In last year's test the scores of the twenty leading pens ranged from 1,080 to 932, with an average of 968.45 eggs, or 16.1 less than in the present test.

THE ORCHARD AND GARDEN

Marketing Early Apples

Although the variety Bramley's Seedling occupies by far the greatest area of the apple orchards of this country, a considerable proportion of the remainder consists of the culinary variety Grenadier and the dessert varieties Beauty of Bath and Gladstone. Apples of these three varieties are usually ready for use towards the end of July and during the month of August. The public are eager to obtain the first of the new season's apples and await their appearance on the market with keen anticipation. In such circumstances producers must

be careful not to disappoint the consumer by offering poorly developed and immature fruits. This point is often disregarded in a desire to get on the market first and irreparable harm to the future demand is often caused by such a foolish practice.

Particular attention should be given to the apples of the two dessert varieties, Beauty of Bath and Gladstone, which are soft fleshed and keep in good condition only for a short time after being picked. For this reason they should be very carefully handled as bruises or other marks sustained during picking or packing will quickly appear. It is worth while to select the very best specimens and to market them in 12 lb. chip baskets or in 20 lb. boxes.

Grenadier apples are in demand only for cooking purposes and small fruits are not wanted. Accordingly, only the largest of the apples should be taken from the trees at the first picking. If apples less than 2½ inches in diameter are mixed with those of larger size, the market value of the whole sample will be greatly reduced.

For some years the supply of Grenadiers has been much in excess of the demand, and it does not seem likely that this variety will ever regain its wartime popularity. Orchard owners are gradually reducing the output of Grenadiers by removing a number of existing trees, but more grubbing out still remains to be done, particularly in orchards in which Bramley's Seedling trees have been interplanted with those of Grenadier.

* * * *

Apple Scab Disease

The protection of trees and fruit against apple scab disease must be maintained by periodic sprayings with fungicides until mid-August. Although the disease is less prevalent towards the end of the growing season than earlier, it would be unfortunate if even a mild attack were permitted to gain a hold on the fruit now. Apples blemished by scab, however light the attack, are unsuitable for prolonged storage and their market value will be seriously lessened in consequence.

* * * *

Plantations of Soft Fruits

Under ideal conditions of culture, raspberry canes and black currant bushes are pruned just after the crop of fruit has been harvested. Few commercial growers, however, can find time to do this work at such a busy season of the year and usually postpone it until autumn or early winter.

If time can be found, the raspberry canes which have borne fruit this season should be cut off at ground level as soon as they are clear of fruit. Doing so then will give the new canes, on which next year's fruit will appear, more room to grow and ripen properly. The same principle applies to black currant bushes except that only a proportion of the old wood, approximately one-third, should be removed in any one year. The branches should be severed low down in the bush to encourage new shoots to arise from points below the cuts.

A considerable amount of tidying up will be needed in strawberry plantations. Weeding is often neglected during the period of picking the fruit, and the soil may become hardened by the trampling.

Once picking is completed, the rows of plants should be gone over and dead and injured foliage, straw, and unwanted runners removed. Tall weeds should be pulled by hand and others destroyed by hoeing. The soil should not be disturbed to a greater depth than two inches, as otherwise the roots of the plants will be injured. After the plantation has been cleaned an application of a complete fertiliser, such as special potato manure, should be made at the rate of approximately 6 cwt. per acre. This will do much to ensure the formation of healthy crowns for the succeeding crop.

Finally, the soil should be drawn up around the plants to encourage the formation of new roots.

* * * *

Tomato Growing Hints

Crops in unheated houses should now be well advanced and the first ripe fruits should be obtained before the end of July. It is not advisable to attempt to hasten ripening by restricting the amount of ventilation, as good ventilation is the best means of preventing attacks of leaf mould disease. Even should the weather be rather cool, the roof ventilators should be kept open both day and night. In addition to providing adequate ventilation, spraying with a copper fungicide should be carried out at from 10 to 14 day intervals.

It has never been proved that stripping the leaves off the plant from the bottom upwards, so as to expose the fruit, has hastened its ripening. The removal of some of the lower leaves, however, may be an advantage as this ensures a better circulation of air below the plants and helps to prevent an attack of mildew. The removal of only a portion of each leaf is not a good practice as the remaining portions rot back, often infecting the main stem of the plant.

The stopping of the plants at a point beyond the fifth or sixth truss is often practised with a view to hastening the development and ripening of the existing fruits. It is very doubtful if this practice has any influence on the rate of ripening and it usually results in the total crop being lowered.

* * * *

The Vegetable Garden

Spring Cabbage: Seed of this crop which is usually called pamphrey or spring greens, and which will mature from next April to June, should be sown soon after mid-July the exact date depending on the district. There are many varieties of spring cabbage, but the plants do not differ greatly as regards the time of reaching maturity, or their shape or size at maturity, if the crop is given suitable care and attention from seed sowing onwards.

On a field scale the seed may be sown on flat topped drills, by means of a turnip sower, whilst in a garden it may be sown by hand in furrows about 1 inch deep and 12 inches apart. Thin sowing is desirable, as only in this way can sturdy plants be obtained for setting out.

Winter Cabbage, Savoys, etc.: The plants should now be growing freely. Frequent hoeing of the soil around them should be carried out to suppress weeds and to prevent undue loss of moisture from the soil. A watch should be kept for caterpillars which usually appear after mid-summer and which, if they are not destroyed, may cause such damage as to leave the plants useless.

The simplest way to kill the caterpillars is to dust the plants thoroughly with a D.D.T. or a derris powder. This should be applied when the leaves are damp, either after rain or early in the morning while the dew is still present. Alternatively, these insecticides may be obtained in a wettable form and applied as a fine, misty spray. In addition to dusting or spraying, any clusters of the yellow eggs found on the undersides of the leaves should be destroyed. It should be noted that as the eggs are laid in clusters the caterpillars will hatch in groups and their destruction is much more readily achieved shortly after hatching than later as they soon wander all over the plant and pass from one plant to another.

Lettuce: Seed for a crop intended for late cutting (October and November) should be sown during the last two weeks of July. Most hardy varieties are suitable, but All the Year Round is the most popular. Seed of lettuce, to obtain a spring maturing crop, should be sown during the early part of August. Suitable varieties are Imperial, Winter Crop and Arctic King.

Onions: Spring onions or scallions are always appreciated during the spring when salads are much in demand. To obtain supplies at this time a sowing of a variety such as White Lisbon should be made during early August.

Seed for the production of bulb onions should be sown at the same time. Seedlings of the latter should be allowed to overwinter in the seed bed and be transferred to their permanent quarters in March or April. Reliance and Autumn Queen are suitable varieties, having few "bolters" in the final crop.

Parsley: In mild districts parsley may be sown during July to produce a spring crop. In gardens, only a small quantity of parsley is needed and in the colder parts of the country this may be readily protected during the winter months with a cloche or with sheets of glass.

Dwarf and Runner Beans: In order to extend the season of production the pods should be picked frequently, even though all the pods are not needed for the table, to prevent the formation of seed. If this is done and the roots of the plants are not allowed to suffer from drought, cropping should persist well into the autumn.

ADVISORY LEAFLETS

A new edition of each of the leaflets mentioned below has been published in recent months. In some cases the leaflet has been re-written, while in others extensive revision has been made to include the most recent advice and information available.

No. 11 Fruit Tree Pests—Aphids and Apple Sucker.
,, 16 The Feeding of Dairy Cows.
,, 20 Hatching and Rearing Chickens
,, 22 Leatherjackets.
,, 31 Coccidiosis in Poultry.
,, 33 Spraying Programme for Apple Orchards.
,, 35 The Fattening of Pigs.
,, 47 Care and Management of Sheep.
,, 48 Beef Production.
,, 73 Growing Healthy Potatoes.
No. 81 Construction of Cow Byres.
,, 87 Growing Potatoes for Seed.
,, 93 The Destruction of Rabbits.
,, 96 Preventing Leaf Stripe and Smut.
,, 117 Potato Root Eelworm.
,, 121 Tuberculosis of Cattle.
,, 122 Poultry Mites, Lice and Fleas.
,, 127 Deep Litter Poultry Keeping.

In addition, two new leaflets have been added. They are :—

No. 2 The Culling of Poultry.
,, 128 The Growing of Fodder Beet.

Copies of all these and of the other leaflets issued by the Ministry may be obtained, on request, and without cost.

Agricultural Prices

HOME-BRED SHEEP

Prices per lb. estimated dressed carcase weight.

PERIOD COMMENCING	Lambs			Sheep					
	First Grade	Second Grade (Hill)	† Ram Lambs	First Grade	Light Ewes	Heavy Ewes	Rams	Unthrifty Lambs and Overfat Sheep	Unthrifty Sheep
1953 :—	d.	d.	d.	d.	d.	d.	d.	d.	d.
13th July ...	31½	28	—	29½	18¾	17¼	16¼	20½	19½
27th ,, ...	31½	28	—	29½	18½	17	16	20¼	19¼
10th August	31½	28	—	29½	18¼	16¾	15¾	20	19
24th ,,	31¼	27¾	—	29¼	18¼	16¾	15¾	20	19
31st ,,	31	27½	—	29	18¼	16¾	15¾	20	19
7th September	30½	27	—	28½	18¼	16¾	15¾	20	19
14th ,,	30	26½	—	28	18¼	16½	15½	19¾	18¾
21st ,,	29½	26	—	27½	18¼	16½	15½	19¾	18¾
28th ,,	29¼	25¾	22½	27¼	18¼	16½	15½	19¾	18¾
26th October	29¼	25¾	22½	27¼	18¼	16¾	15¾	20	19
23rd November	29¾	26¼	23	27¾	18½	17	16	20¼	19¼
7th December	30¼	26¾	23¼	28¼	18¾	17¼	16¼	20½	19½
14th ,,	30½	27	23½	28½	19	17½	16½	20¾	19¾
21st ,,	30¾	27¼	23¾	28¾	19¼	17¾	16¾	21	20
28th ,,	31½	28	24	29½	19¼	17¾	16¾	21	20
1954 :—									
4th January ...	32	28½	24½	30	19¼	17¾	16¾	21	20
11th ,, ...	32½	29	24½	30½	19¼	17¾	16¾	21	20
18th ,, ,, ...	33⅓	30	25⅓	31½	19¾	18¼	17¼	21½	20½
25th ,, ...	33¾	30¼	25½	31¾	20	18½	17½	21¾	20¾
1st February ...	34¼	30¾	26	32¼	20½	19	18	22¼	21¼
8th ,, ...	34¼	30¾	26¼	32¼	20¾	19¼	18¼	22½	21½
				*a*31¾*	—	—	—	—	21 *
15th ,, ...	34¾	31¼	27	*b*30¼	18¾	17¼	16¼	20½	19½
				*c*33¼	21¾	20¼	19¼	23½	22½
				*a*31¾*	—	—	—	—	21¼*
22nd ,, ...	34¾	31¼	27¼	*b*30¼	19	17½	16½	20¾	19¾
				*c*33¼	22	20½	19½	23¾	22¾
				*a*31¾*	—	—	—	—	21½*
1st March ...	35¼	31¾	27¾	*b*30¼	19¼	17¾	16¾	21	20
				*c*33¾	22¾	21¼	20¼	24½	23½
				*a*31¾*	—	—	—	—	21½*
8th ,, ...	35¼	31¾	28	*b*30¼	19½	18	17	21	20
				*c*33¾	23	21½	20½	24½	23½
				*a*31¾*	—	—	—	—	21½*
15th ,, ...	35¾	32¼	28¼	*b*30¼	19½	18	17	21	20
				*c*34¼	23½	22	21	25	24
				*a*31¾*	—	—	—	—	21¾*
22nd ,, ...	35¾	32¼	28½	*b*30¼	19¾	18¼	17¼	21¼	20¼
(to 28th March)				*c*34¼	23¾	22¼	21¼	25¼	24¼

a—shearling sheep. *b*—shorn. *c*—unshorn.

*—Lambs born in 1953 and presented after shearing in 1954.

†—Includes all ram lambs and lambs possessing the physical characteristics of ram lambs except :—

(a) Ram lambs born in the last three months of 1953 or early in 1954 which are sold as sucking lambs. **These must be classed as lambs.**

(b) Ram lambs presented after shearing in the year following year of birth. **These must be classed as rams.**

Spring Lambs:—From 28th December, 1953 to 28th March, 1954, **first grade lambs** which are estimated to yield carcases of not less than 30 lb. and which in the opinion of the Purchasing Officer are not more than sixteen weeks old, will be paid for at prices 6d. per lb. estimated dressed carcase weight higher than the prices shown above. As from 28th December the maximum total payment for any lamb will be not more than that applicable to a lamb of 80 lb., and the maximum total payment for any other class of sheep will be not more than that applicable to an animal of that class weighing 90 lb.

Light weight ewes with an estimated dressed carcase weight of 48 lb. or under will be paid for at prices 1d. per lb. estimated dressed carcase weight higher than the prices shown above.

Overfat shearling sheep will be paid for at 1d. per lb. above the rates shown for unthrifty shearling sheep.

Headage payments over and above the per lb. price will be paid for first quality sheep and lambs as follows :—

over	24 lb. and not over 35 lb.	... ...	3s. 0d. per head.
,,	35 lb. and not over 48 lb.	... ...	5s. 0d. per head.
,,	48 lb. and not over 60 lb.	... ...	3s. 0d. per head.

During the period from 28th September to 22nd November, an additional headage payment of 4/– per head will be made for **first grade lambs** only which are estimated to yield carcases over 24 lb. and not over 35 lb.

Sheep, lambs, ram lambs and ewes for manufacturing purposes will be paid for at 10¾d. per lb. estimated dressed carcase weight.

Rams for manufacturing purposes will be paid for at 9¾d. per lb. estimated dressed carcase weight.

FAT CATTLE

Steers and Heifers (Home-bred)—per live cwt.

PERIOD COMMENCING	Grade and Killing-out Percentage									
	Super Special 59 & over	Special 58	A+ 57	A 56	A— 55	B+ 54	B 53	B— 52	C+ 51	C 50
1953 :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
13th July ...	143 3	141 3	139 0	136 0	135 6	130 6	123 6	120 6	100 3	97 3
20th ,, ...	141 9	139 9	137 6	134 6	134 0	130 0	123 0	120 0	99 9	96 9
27th ,, ...	140 9	138 9	136 6	133 6	133 0	129 6	122 6	119 6	99 3	96 3
3rd August ...	140 3	138 3	136 0	133 0	132 6	129 0	122 0	119 0	98 9	95 9
10th ,, ...	139 9	137 9	135 6	132 6	132 0	128 6	121 6	118 6	98 3	95 3
17th ,, ...	138 9	136 9	134 6	131 6	131 0	127 6	120 6	117 6	97 3	94 3
24th ,, ...	137 9	135 9	133 6	130 6	130 0	126 6	119 6	116 6	96 3	93 3
31st ,, ...	136 9	134 9	132 6	129 6	129 0	125 6	118 6	115 6	95 3	92 3
7th September ...	135 9	133 9	131 6	128 6	128 0	124 6	117 6	114 6	94 3	91 3
14th ,, ...	134 9	132 9	130 6	127 6	126 0	120 9	113 0	109 3	89 0	86 0
21st ,, ...	133 9	131 9	129 6	126 6	125 0	119 9	112 0	108 3	88 0	85 0
28th ,, ...	132 3	130 3	128 0	125 0	123 6	118 3	110 6	106 9	86 6	83 6
5th October ...	130 3	128 3	126 0	123 0	120 6	113 6	105 0	100 6	80 3	77 3
23rd November ...	132 3	130 3	126 0	123 0	120 6	113 6	105 0	100 6	80 3	77 3
30th ,, ...	133 3	131 3	127 0	124 0	121 6	115 0	107 0	103 6	83 3	80 3
7th December ...	135 3	133 3	129 0	126 0	125 6	121 0	113 0	109 6	89 3	86 3
14th ,, ...	135 3	133 3	129 0	126 0	125 6	122 0	115 0	112 0	91 9	88 9
21st ,, ...	135 9	133 9	131 0	128 0	127 6	124 0	117 0	114 0	93 9	90 9
28th ,, ...	138 9	136 9	134 6	131 6	131 0	126 0	119 0	116 0	95 9	92 9
1954 :—										
4th January ...	140 9	138 9	136 6	133 6	133 0	128 0	121 0	118 0	97 9	94 9
11th ,, ...	141 9	139 9	137 6	134 6	134 0	129 0	122 0	119 0	98 9	95 9
18th ,, ...	142 9	140 9	138 6	135 6	135 0	130 0	123 0	120 0	99 9	96 9
25th ,, ...	143 9	141 9	139 6	136 6	136 0	131 0	124 0	121 0	100 9	97 9
1st February ...	144 9	142 9	140 6	137 6	137 0	132 0	125 0	122 0	101 9	98 9
8th ,, ...	145 9	143 9	141 6	138 6	138 0	133 0	126 0	123 0	102 9	99 9
22nd ,, ...	146 9	144 9	142 6	139 6	139 0	134 0	127 0	124 0	103 9	100 9
1st March ...	147 9	145 9	143 6	140 6	140 0	134 0	127 0	124 0	103 9	100 9
8th ,, ...	148 9	146 9	144 6	141 6	141 0	135 0	128 0	125 0	104 9	101 9
22nd ,, ... (to 28th March)	149 9	147 9	145 6	142 6	142 0	135 0	128 0	125 0	104 9	101 9

Until 31st January the prices of home-bred and T.A.B. steers and heifers will be reduced by 5/– per live cwt. in the case of animals weighing 13¾ to 15¾ cwt. (inclusive) net live weight and by 10/– per live cwt. in the case of animals weighing 16 cwt. and over net live weight. From 1st February to 28th March the reductions will be 2/6 and 5/– respectively, per live cwt.

A quality premium of 4/9 per cwt. will be paid for steers and heifers which fulfil the following conditions :—

(*a*) **Conformation:**—The animal shall be firm, deep and even in the flesh when handled. Animals which are big in bone, rough in forequarter and very light in hind-quarters or which are unduly patchy in fat will not qualify.

(*b*) **Minimum Killing-out Percentage:**—The animal shall have an estimated killing-out percentage of not less than 56.

(*c*) **Weight Ranges:**—The premium will apply only to steers weighing 9 cwt. to 13 cwt. net live weight and to heifers weighing 7½ cwt. to 11¾ cwt. net live weight.

Special Young Cows (Home-bred)

Killing-out Percentage = 56 and over

Period Commencing	Per live cwt.	Period Commencing	Per live cwt.	Period Commencing	Per live cwt.
1953 :—	s. d.	1953 :—	s. d.	1954 :—	s. d.
13th July	135 9	14th September	127 3	11th January	134 3
20th ,,	134 3	21st ,,	126 3	18th ,,	135 3
27th ,,	133 3	28th ,,	124 9	25th ,,	136 3
3rd August	132 9	5th October	122 9	1st February	137 3
10th ,,	132 3	30th November	123 9	8th ,,	138 3
17th ,,	131 3	7th December	125 9	22nd ,,	139 3
24th ,,	130 3	21st ,,	127 9	1st March	140 3
31st ,,	129 3	28th ,,	131 3	8th ,,	141 3
7th September	128 3	1954 :—		22nd ,,	142 3
		4th January	133 3	(to 28th March)	

Special Young Cows will be defined as female cattle which have calved and been properly dried off; which have an estimated killing-out percentage of 56 per cent. or over : which are firm, deep and even in the flesh when handled and are not unduly patchy in fat : and which weigh not less than 8 cwt. net live weight.

N.B.—There is no maximum weight for the Special Young Cow grade but the maximum total payment for any Special Young Cow will be that applicable to an animal of 12¾ cwt. net live weight.

Imported steers, heifers and special young cows sold to the Ministry for slaughter after being two months in Northern Ireland (i.e. T.A.B. animals) will be paid for at **4/6** per cwt. less than the fixed prices payable for corresponding grades of home-bred cattle.

Intermediate Cows (Home-bred and T.A.B.)†

Prices for Intermediate Cows will be 24/– per live cwt. less than those shown for Special Young Cows.

The maximum total payment for any Intermediate Cow will be that applicable to an animal of 12¾ cwt. net live weight.

The Intermediate Cow class will comprise cows which have an estimated killing-out percentage of **54 per cent., but less than 56 per cent.** but which, otherwise, would be eligible for classification as Special Young Cows.

Other Fat Cows (Home-bred and T.A.B.)†—per live cwt.

PERIOD COMMENCING	Grade and Killing-out Percentage							
	Special 56 & over	A+ 55	A 54	A— 53	B+ 52	B 51	B— 50	Manufacturing 50 and under 54
1953 :—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
22nd June	94 3	91 3	88 3	81 9	78 3	75 3	72 3	59 0
31st August	92 9	89 9	86 9	80 3	76 9	73 9	70 9	59 0
7th September	92 3	89 3	86 3	79 9	76 3	73 3	70 3	59 0
14th ,, ...	91 3	88 3	85 3	78 9	75 3	72 3	69 3	59 0
21st ,, ...	90 3	87 3	84 3	77 9	74 3	71 3	68 3	59 0
28th ,, ...	89 3	86 3	83 3	76 9	73 3	70 3	67 3	59 0
5th October	88 3	85 3	82 3	75 9	72 3	69 3	66 3	59 0
14th December	89 3	86 3	83 3	76 9	73 3	70 3	67 3	59 0
21st ,, ...	90 3	87 3	84 3	77 9	74 3	71 3	68 3	59 0
1954 :—								
18th January	91 3	88 3	85 3	78 9	75 3	72 3	69 3	59 0
8th February	91 9	88 9	85 9	79 3	75 9	72 9	69 9	59 0
15th March ... ... (to 28th March)	92 3	89 3	86 3	79 9	76 3	73 3	70 3	59 0

This class will comprise all cows which are ineligible for classification as Special Young Cows or Intermediate Cows.

Bulls (Home-bred and T.A.B.)†—per live cwt.

PERIOD	Grade and Killing-out Percentage										
	Special		Super Special 58 & over	A+ 57	A 56	A— 55	B+ 54	B 53	B— 52	C+ 51	C 50
	Young Bull I 56 & over	Young Bull II 54 & under 56									
30th March, 1953 to 28th March, 1954	86/-	81/-	73/6	71/-	68/6	66/-	63/6	61/-	57/-	53/6	49/6

†—T.A.B. indicates imported animals which have been in Northern Ireland for a period of two months or longer.

Bulls (Special):—The definition to be "Young bulls which have grown no permanent incisor teeth and which in the opinion of the Purchasing Officer will yield carcases of first quality beef."

Minimum weight for cattle:—An animal weighing less than 6¾ cwt. net live weight will not be eligible for grading unless the producer claims at the collecting centre and an examination by the Purchasing Officer shows that the animal has cut at least one broad tooth. All other animals weighing less than 6¾ cwt. net live weight may be purchased only under the "Owner's Risk" procedure.

Recovery of Calf Subsidy:—The sum of £5 will be deducted from the total purchase price of any animal weighing less than 6¾ cwt. on which calf subsidy has been paid and which is accepted for purchase as an Owner's Risk animal or is sent for slaughter under the casualty procedure, has not cut at least one broad tooth and yields a dressed carcase weighing less than 400 lb.

MILK

The following are the prices per gallon which will be paid to producers for milk sold to the Ministry during July and August :—

	July s. d.	*August* s. d.
Liquid Quality:—		
Grade A. (T.T.) licence holders ...	*2 6½	*2 10½
Other suppliers	2 0½	2 4½
Manufacturing Quality:—		
All suppliers	0 10	0 10

*—If Grade A milk is not bottled on the farm these prices are reduced by 2d. per gallon.

Notes of the Month

Scholarships

Intending candidates for the Ministry's scholarships in agriculture, horticulture and dairy science are reminded that the closing date for receipt of applications is the 5th August. Explanatory leaflets and application forms may be obtained on request from the County Agricultural Executive Officer or from the Secretary, Ministry of Agriculture, Stormont.

* * * *

Greenmount Agricultural and Horticultural College, Muckamore

Part-scholarships for separate courses of ten months' duration in agriculture and horticulture are available for boys of seventeen years of age and over, for the session commencing on 8th September. An exception may be made from the age qualification in the case of younger applicants who have reached matriculation standard or its equivalent.

The Principal will be glad to interview prospective students or their parents by appointment.

Copies of the prospectus may be obtained from the Principal or from the Ministry of Agriculture, Stormont, to whom completed application forms should be sent not later than the 31st July, 1953.

* * * *

Loughry Agricultural College, Cookstown

A generous number of part-scholarships for the ten months' course in

poultry and dairy husbandry are available for girls of seventeen years and over for the session commencing on the 8th September next.

There is no prescribed standard of eligibility and the award of the scholarships is determined by interview with the Principal of the College.

Girls who have passed the Senior Certificate examination (or its equivalent) are eligible to compete for additional scholarships at the end of this course to enable them to continue their studies at the College for a further two years, with a view to obtaining the Ulster Diploma in Poultry Husbandry.

Copies of the prospectus and application forms are obtainable from the Ministry's offices at Stormont or from the Principal of the College. The closing date for the receipt of applications is the 31st July.

* * * *

Weeds and Agricultural Seeds Acts (Northern Ireland) 1909 and 1929

Farmers and gardeners are reminded that, under the provisions of the above Acts, failure to destroy any thistles, docks, ragwort or ox eye (dog) daisies growing on their land is an offence for which they may be prosecuted and fined.

In the interests of good husbandry all weeds should be cut before they seed.

The time to do it is *NOW*.

* * * *

Extra Summer Subsidy for Lime

An increased rate of subsidy, now 70% of the delivered cost, is payable for lime *delivered* to occupiers of agricultural land during the period from 18th May to 15th August, 1953.

This subsidy is additional to the spreading subsidy which is payable for deliveries made on and after 2nd April, 1953.

If delivery of lime occupies several days, partly within and partly outside the extra summer subsidy period, separate particulars must be entered in Part I of the forms of application (A.L.S.7 and A.L.S.18) showing clearly the actual quantities *received* by the occupier (a) during and (b) outside the extra summer subsidy period.

* * * *

Grading of Pigs

Certain changes in the grade measurements of bacon pigs became effective as from 29th June, 1953. The carcase measurements now operating for the various grades are as follows :—

Grade A.—To qualify for this category, carcases must have a mid-back fat measurement of not less than $\frac{3}{4}$ inch or more than $1\frac{5}{16}$ inches and, in addition, either the thickness of the shoulder fat must not exceed $2\frac{1}{8}$ inches or that of the loin fat $1\frac{5}{16}$ inches. Any carcase which is grade A on the mid-back and also at one other point, but which is one or more grades below B at the remaining point, shall be classified as Grade B.

Grade B.—The minimum mid-back fat measurement which qualifies for this grade is also $\frac{3}{4}$ inch, but the maximum is raised to $1\frac{1}{2}$ inches. In addition, either the thickness of the shoulder fat must not exceed $2\frac{1}{4}$ inches or that of the loin fat $1\frac{1}{2}$ inches. Any carcase which is Grade B on the mid-back and either Grade A or B at one other point, but which is below C at the remaining point, shall be classified as Grade C.

Grade C.—The minimum mid-back fat measurement which qualifies for this grade is again $\frac{3}{4}$ inch, but the maximum is increased by a further $\frac{1}{8}$ inch to $1\frac{5}{8}$ inches. Also, either the thickness of the shoulder fat must not exceed $2\frac{3}{8}$ inches or that of the loin fat $1\frac{5}{8}$ inches.

Grade F.—Any carcase in which the maximum back fat measurements exceed those for Grade C. pigs.

Grade L.—Any carcase in which the mid-back fat measurement is less than the minimum of $\frac{3}{4}$ inch.

In the case of carcases graded with "skin off" the measurements in each instance will be $\frac{3}{16}$ inch less than those given above.

The measurements will be taken at the following points on the carcase :—

(1)—Mid-back—Thickness of the fat on the middle of the back where the fat is thinnest.

(2)—Loin—Thickness of the fat over the top of the rump muscle.

(3)—Shoulder—Thickness of the fat on the shoulder at the fattest part.

Helping-hand Hints

Give *every field an opportunity to produce a full yield of high quality produce. Destroy weeds in all arable crops and pastures, spray potatoes thoroughly and at least twice, cultivate fully during the growing season, and strive to harvest every crop well and to make the produce safe in storage. High yields mean more and cheaper food which, in turn, results in the production costs being lowered and, consequently, in the profits from stock and stock products being raised.*

Kill *the foliage of seed potato crops when the proportion of seed size tubers has reached the maximum. A close watch should be kept on tuber development to ensure that the correct stage is not missed. Killing the foliage early also minimises the risk of the tubers becoming infected with blight, and, for that reason alone, is well worth the cost involved. Growers of stock seed crops should note that the foliage must be killed or cut off, on or before a date to be announced by the Ministry.*

Launch *a persistent attack on rushes. Cutting them twice yearly, in July and October, will banish rushes from well-drained grazing land. Spraying the rushes with a selective weed-killer has also given promising results. In conjunction with either cutting or spraying, adequate dressings of lime and fertilisers should be applied to encourage more vigorous growth of the grasses and clovers. If the land is wet, suitable drainage is the first essential in the suppression of rushes.*

Prevent *milk going sour by keeping it cool. Souring is caused by bacteria which are most active at temperatures ranging from 70 to 90 degrees and which remain dormant at low temperatures. If milk is produced under clean conditions, cooled efficiently immediately after milking to 55 degrees or less, and kept cool, both on the farm and while it awaits collection, it will remain sweet.*

Let *the growing pullets have full opportunity to develop into strong, vigorous birds. Next winter's egg supply will depend on the age and quality of the pullets now being reared, and on their care and management during the next couple of months. The birds should have access to unrestricted grass range and be fed largely on oats until they are about 4½ months old when the proportion of mash should be increased and more protein added to the mash.*

Clean *the strawberry beds as soon as the final picking of fruit has been completed. All weeds, runners and damaged foliage should be removed, the ground between the plants carefully hoed, a dressing of artificial fertilisers applied and some soil placed around the crowns. As the plants will be forming new roots and building up crowns for next year's crop from July onwards, it is important that they should be given every encouragement to do this efficiently.*

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